

1 1. A method comprising:
2 treating an unexposed photoresist with an
3 electric field.

1 2. The method of claim 1 wherein treating includes
2 exposing a photoresist to an electric field to reduce the
3 horizontal extent of aggregates formed in the photoresist.

1 3. The method of claim 1 wherein treating includes
2 reducing line edge roughness by exposing photoresist to an
3 electric field before exposing the photoresist to
4 radiation.

1 4. The method of claim 1 wherein treating the
2 photoresist includes exposing said photoresist to an
3 electric field while the photoresist is above its glass
4 transition temperature.

1 5. The method of claim 4 including causing said
2 photoresist to exceed its glass transition temperature by
3 heating said photoresist.

1 6. The method of claim 5 including causing said
2 photoresist to exceed its glass transition temperature by
3 solvent-induced depression.

1 7. The method of claim 1 wherein treating an
2 unexposed photoresist includes using an electrode to
3 generate said electric field, said electrode having an
4 opening that enables said photoresist to be exposed to
5 radiation.

1 8. The method of claim 1 wherein treating includes
2 depositing a conductive layer on said photoresist in order
3 to apply an electric field to said photoresist.

1 9. The method of claim 1 wherein treating an
2 unexposed photoresist with an electric field includes
3 generating said electric field by passing alternating
4 current through a coil.

1 10. The method of claim 9 including using a radio
2 frequency coil.

1 11. A method comprising:
2 forming a conductive layer over photoresist; and
3 exposing said photoresist to an electric field
4 using said layer.

1 12. The method of claim 11 including depositing said
2 layer to enable radiation to pass through said layer.

1 13. The method of claim 11 including depositing a
2 conductive material to form said layer and removing said
3 layer after the photoresist is developed.

1 14. The method of claim 11 including spinning on said
2 conductive layer.

1 15. The method of claim 11 wherein forming a
2 conductive layer includes depositing a water soluble
3 conductive material to act as said conductive electrode.

1 16. A method comprising:
2 treating a photoresist with an electric field
3 generated by passing alternating current through a coil.

1 17. The method of claim 16 including arranging said
2 coil so as to allow said photoresist to be exposed to
3 radiation.

1 18. The method of claim 16 including exposing said
2 photoresist to said electric field while said photoresist
3 is being exposed to radiation to transfer a pattern to said
4 photoresist.

1 19. The method of claim 16 including using a radio
2 frequency coil.

- 1 20. A method comprising:
2 exposing photoresist to radiation; and
3 while exposing said photoresist to radiation,
4 exposing said photoresist to an electric field.
- 1 21. The method of claim 20 including exposing said
2 photoresist to an electric field using an electrode with an
3 opening to permit the passage of radiation.
- 1 22. The method of claim 20 including exposing said
2 photoresist to radiation through an electrode which is thin
3 enough to allow said radiation to pass.
- 1 23. The method of claim 20 including exposing said
2 photoresist to an electric field using a radio frequency
3 coil to induce said electric field.
- 1 24. The method of claim 20 including exposing the
2 photoresist to extreme ultraviolet radiation.
- 1 25. A method comprising:
2 forming a photoresist on a substrate;
3 baking said photoresist before exposure; and
4 while baking said photoresist, applying an
5 electric field.

1 26. The method of claim 25 including exposing said
2 photoresist to an electric field using a radio frequency
3 coil.

1 27. The method of claim 25 including exposing said
2 photoresist to an electric field using an electrode with an
3 opening therethrough.

1 28. The method of claim 27 including using a ring
2 shaped electrode.

1 29. The method of claim 25 including exposing said
2 baked photoresist to extreme ultraviolet radiation.

1 30. A method comprising:
2 developing an irradiated photoresist; and
3 while developing said irradiated photoresist,
4 exposing said photoresist to an electric field.

1 31. The method of claim 30 including causing the
2 resist development rate to be higher at the bottom of the
3 photoresist than at the top.

1 32. The method of claim 30 including applying an AC
2 potential to said photoresist.

1 33. The method of claim 30 including applying a DC
2 potential to said photoresist.

1 34. A semiconductor structure comprising:
2 a substrate having a plane;
3 photoresist on said substrate; and
4 aggregates dispersed through said photoresist,
5 said aggregates being aligned substantially transversely to
6 the plane of said substrate.

1 35. The structure of claim 34 wherein said
2 photoresist is a hydrogen-bonding polymer or copolymer.

1 36. The structure of claim 34 wherein said substrate
2 is a wafer.

1 37. A semiconductor structure comprising:
2 a substrate;
3 a photoresist over said substrate; and
4 a soluble conductive layer formed over said
5 photoresist, said conductive layer to apply an electric
6 field to said photoresist.

1 38. The semiconductor structure of claim 37 wherein
2 said conductive layer comprises a functionalized
3 polythiophene polymer.

1 39. The semiconductor structure of claim 38 wherein
2 said conductive layer comprises a functionalized
3 polythiophene polymer and onium sulfonate salt.

1 40. The semiconductor structure of claim 37 wherein
2 said conductive layer comprises a functionalized
3 polythiophene polymer and an ammonium sulfonate salt.